

glass layer, such that at least a portion of the metal-containing layer diffuses into the chalcogenide glass layer; and,

after said step of irradiating, exposing an outer surface of the chalcogenide glass layer to an iodine comprising fluid.

35. (new) The method of claim 34, wherein the iodine comprising fluid is a liquid.

36. (new) The method of claim 34, wherein the iodine comprising fluid is an iodide comprising solution.

37. (new) The method of claim 34, wherein the iodine comprising fluid is a potassium iodide solution.

Sub D2 38. (new) The method of claim 37, wherein the potassium iodide solution comprises from 5 to about 30 grams I₂ per 1 liter of a from 20% to about a 50% potassium iodide solution.

39. (new) The method of claim 34, wherein the irradiating is effective to form Ag₂Se as at least part of the outer surface, the etching being effective to etch away at least some of the Ag₂Se and thereby at least partially contributing to said roughness reducing.

40. (new) The method of claim 34, wherein the metal-containing layer is a silver comprising layer.

41. (new) The method of claim 40, wherein the silver comprising layer is predominately elemental silver.

Sub D37 42. (new) The method of forming a chalcogenide structure, comprising: forming a first conductive layer on a semiconductor substrate;

forming a chalcogenide glass layer over said first conductive layer;

forming a metal-containing layer over said chalcogenide glass layer;

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irradiating said metal-containing layer to break a chalcogenide bond of the chalcogenide glass layer at the interface of the metal-containing layer and chalcogenide glass layer thereby creating an outside surface;

removing at least a portion of said outside surface by etching with an iodine comprising fluid; and

forming a second conductive layer over at least a portion of the removed interface of said metal-containing layer and chalcogenide glass layer.

43. (new) The method of claim 42, wherein the iodine comprising fluid is a liquid.

44. (new) The method of claim 42, wherein the iodine comprising fluid is an iodide comprising solution.

45. (new) The method of claim 42, wherein the iodine comprising fluid is a potassium iodide solution.

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46. (new) The method of claim 45, wherein the potassium iodide solution comprises from 5 to about 30 grams I_2 per 1 liter of a from 20% to about a 50% potassium iodide solution.

47. (new) The method of claim 42, wherein the irradiating is effective to form Ag_2Se as at least part of the outer surface, the etching being effective to etch away at least some of the Ag_2Se and thereby at least partially contributing to said roughness reducing.

48. (new) The method of claim 42, wherein the metal-containing layer is a silver

comprising layer.

49. (new) The method of claim 48, wherein the silver comprising layer is predominately elemental silver.

50. (new) The method of claim 42, wherein said first conductive layer and second conductive layer are electrodes.

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